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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,470	02/21/2001	Jeffrey Dean Reinsma	7107	6199

7590 03/02/2007

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EXAMINER	
JARRETT, SCOTT L	
ART UNIT	PAPER NUMBER
3623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/788,470	REINSMA ET AL.	
	Examiner	Art Unit	
	Scott L. Jarrett	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 11 December 2006.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-43 and 80-89 is/are pending in the application.

4a) Of the above claim(s) 44-79 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Non-Final Office Action is in response to Applicant's Remarks filed December 11, 2006. Currently claims 1-43 and 80-89 are pending. Claims 44-79 and 90-92 being previously withdrawn.

Response to Arguments

2. Applicant's arguments, see Paragraph 2, Page 51, filed December 11, 2006, with respect to the rejection of claims 27-28 under 35 U.S.C. 103(a) as being obvious over Papamichael K. et al., Building Design Advisor (BDA) in view of MECcheck Software User's Guide Version 3.0 (April 2000, MEC) and further in view of Jung, Pyoung-Young, U.S. Patent No. 6,996,503 have been fully considered and are persuasive. However, upon further consideration, a new ground(s) of rejection is made in view of Wakelam et al., U.S. Patent No. 6,859,768 in view of Khan, U.S. Patent Publication No. 2002/0032611.

3. Applicant's arguments, see Paragraph 2, Page 61, filed December 11, 2006, with respect to the rejection of claims 36 and 83 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of:

- Claim 36: Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck); and

- Claim 83: Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) and further in view of Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986).

4. Applicant's arguments, see Paragraph 1, Page 64, filed December 11, 2006, with respect to the rejection of claims 39-41 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) and further in view of Bosch, Maria An Expert System for Cost-Effective Energy Efficiency Calculations (1996).

5. Applicant's arguments filed December 11, 2006 with respect to Claims 1-43 and 80-89, specifically as they relate to Papamichael K. et al.'s Building Design Advisor, have been fully considered but they are not persuasive.

However, in an effort to further prosecution of the instant application new grounds of rejection is made herein therefore applicant's arguments with respect to claims 1-43 and 80-89 have been considered but are moot in view of the new ground(s) of rejection.

Examiner wishes to address some of the applicant's argument, specifically those directed to Papamichael K. et al.'s Building Design Advisor (BDA) system/method wherein Applicant's argue:

- that Building Design Advisor (BDA) is not a proper primary reference (Remarks: Pages 25-27, 28, 31);
- that Building Design Advisor (BDA fails to teach or suggest either singly or in combination each and every element of the claimed invention, specifically failing to teach or suggest:
  - "selecting a set of items based on the calculated set of values" or "code for selecting set of items based on the calculated total first values" wherein Applicant's emphasize that DBA simply teaches a user selecting the items not the code and/or the computer-implemented method as allegedly claimed (and/or code for selecting (Remarks: see at least Page 33; Paragraphs 1, 3, Page 35; Last Paragraph, Page 37); and
  - that BDA teaches away from the step of selecting items (Remarks: see at least Paragraphs 1-2, Page 41).

In response to Applicant's argument that the Building Design Advisor (BDA) system and method since it is not a primary reference and further that the BDA system

fails to teach or teaches away from alleged limitations in the pending claims the examiner respectfully disagrees.

The Building Design Advisor (BDA) system and method is a single prior art software system and method for selecting a set of project items (building components, materials, equipment, etc.) that meet project criteria, wherein each of the cited *supporting* references *expressly* teach features, capabilities and/or characteristics **inherent** in the Building Design Advisor software product (system/method).

Further it is noted that the cited supporting references:

- each contain at least one common author Papamichael K. (Reference A: Papamichael, Chauvet; Reference B: Papamichael, Chauvet, LaPorta, Dandridge; Reference C: Papamichael);
- Reference A is cited in the bibliography of Reference B ([7] Page 10);
- each of the cited references and the research and development disclosed was funded by the California Institute for Energy Efficiency (CIEE); and
- and all of the cited references (i.e. the BDA system/method) were written at the Building Technologies Program, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkley National Laboratory in Berkeley California.

In response to the Applicant's argument that the prior art of record fails to teach or suggest each and every feature of the claimed invention the examiner respectfully disagrees.

In response to the Applicant's argument that the prior art of record fails to teach or suggest *selecting* or *code for selecting* a set of items that satisfy a set of values the or that the BDA reference teaches away from the examiner *selecting* or *code for selecting* a set of items the examiner respectfully disagrees.

Initially it is noted that the features upon which applicant relies (i.e., *that the Applicant's system/computer implemented method/code selects* a set of items that satisfy a set of values vs. a person selecting the set of items through the use/application of the system) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

More specifically Building Design Advisor teaches a computer-implemented system and method of selecting items for a project within a criteria comprising:

- selecting a set of items based on calculated set of values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2,

Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- displaying to a user the selected items that meet project criteria (items that meet performance criteria, etc.; reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

Further it is noted that several prior art references teach the automated selection of a set of items that satisfy a set of values (e.g. automatically selection a set of items that satisfy a set of values by selecting windows, insulation, HVAC or other structural components of a building) including *at least* the following references:

- Building Design Advisor (BDA): "For every object created in the SGE, the BDA activates a default Value Selector (DVS) mechanism that selects smart default values from a prototypes database for all non-geometric parameters…", reference A: Abstract; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; reference B: "Advances in computer applications over the last few decades have resulted in the gradual replacement of manual modeling with computer-simulation models.", Column 2, Paragraph 3, Page 1; Column 2, Paragraph 3, Page 2; reference C: Column 2, Paragraph 2, Page 4; Column 2, Paragraph 2, Page 5;
- Bosch, Maria, An expert system for cost-effective energy efficiency calculations (1996): Column 1, Paragraph 2, Page 23; Column 1, Paragraphs 2-3, Page 24;
- New software tool identifies green design strategies (1999): entire article;
- Rosenthal et al., U.S. Patent No. 4,181,954: Column 2, Lines 29-48;
- Pray et al., U.S. Patent No. 4,885,694: Column 1, Lines 7-25; Column 13, Lines 65-68;
- Williams, David, U.S. Patent No. 5,517,428: Column 1, Lines 10-18;

- Kurtzberg et al., U.S. Patent No. 5,822,719: Abstract; Column 1, Lines 10-14; Column 2, Steps 1-7;
- Ray, Charles, U.S. Patent No. 6,167,388: Column 1, Lines 5-20; Column 2, Lines 10-15; and
- Rappaport et al., U.S. Patent No. 7,055,107: Column 1, Lines 38-49; Column 6, Lines 3-30.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-7, 13-15, 17-19, 25, 30-34, 42, 82, 84-85 and 89 are rejected under 35 U.S.C. 102(e) as being anticipated by Wakelam et al., U.S. Patent No. 6,859,768.

Regarding Claim 1 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria comprising (Column 2, Lines 1-10; Figures 1, 1a, 3, 6a-6b):

- inputting project information, including project criteria (parameters, requirements, codes, rules, engineering formulas, regulations, client requirements, material specifications, etc.; Column 2, Lines 1-10, 48-60; Column 8, Lines 16-37, 55-68; Column 10, Lines 6-56; Column 20, Lines 12-29; Figure 1a, Element 151, 152, 154; Figure 3, Element 300; Figures 1b, 4a-4d, 4f-4i);

- determining, with a computer, sets of items (elements, massing elements, lower-tier elements, components, materials, etc.) based on the project information that meet the criteria (Column 3, Lines 35-46; Column 4, Lines 1-8, 60-68; Column 6, Lines

17-22; Column 12, Lines 11-35; Column 14, Lines 15-55; Column 19, Lines 1-37; Figure 3, Element 302; Figure 6a);

- calculating for each set of items a set value (cost, price, schedule, item clashes, material quantities, code check, budget check, etc.; Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- selecting a set of items based on the calculated set of values (design, building model, building configuration, clash detection, rattling the box, etc.; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308); and

> "For example, **based on a design parameter of 50 lb/sf live load, the DMES system 110 would design a end span beam with the following attributes**: width 2'6"; depth 203/4"; reinforcing steel bottom 2--#11's; top east 6--#4's; top west 7--#11's; and #4 stirrups at 18" on center. **If it was determined that the live load needed to increase to 80 lb/sf, the DMES system would redesign the beam** to 3'0" wide and increase the reinforcing steel to: bottom 3--#11's; top east 4--#5's; top west 8--#11's; and #4 stirrups at 14" on center. ", Column 17, Lines 53-62, emphasis added

- displaying to a user the selected items that meet the project criteria (building model, building configuration, design; Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520).

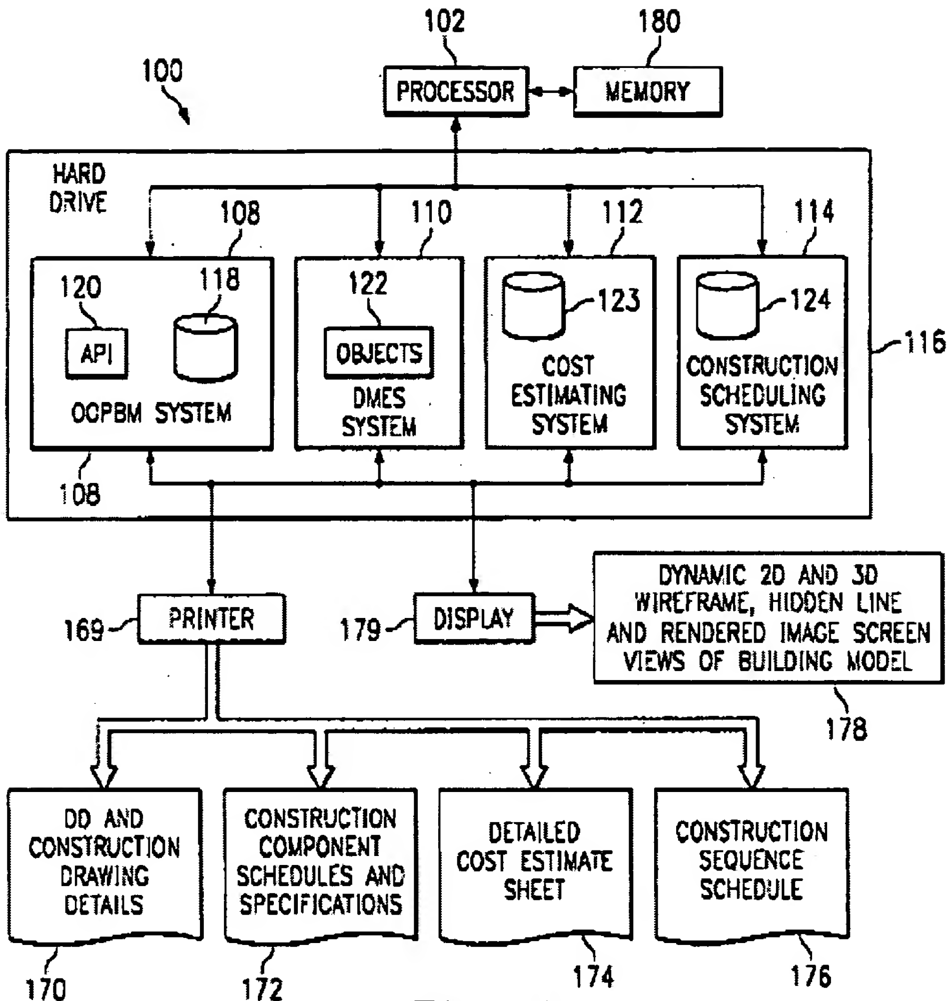

Fig. 1

Figure 1: Wakelam et al.

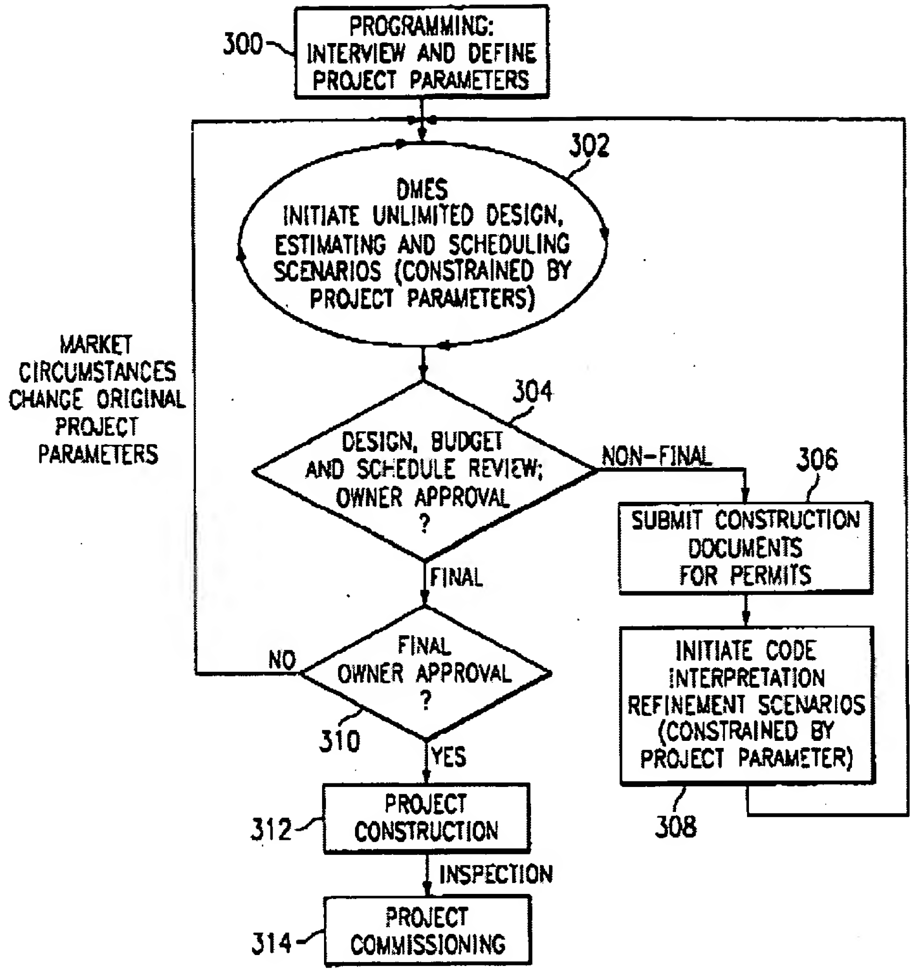

Fig. 3

Figure 2: Wakelam et al.

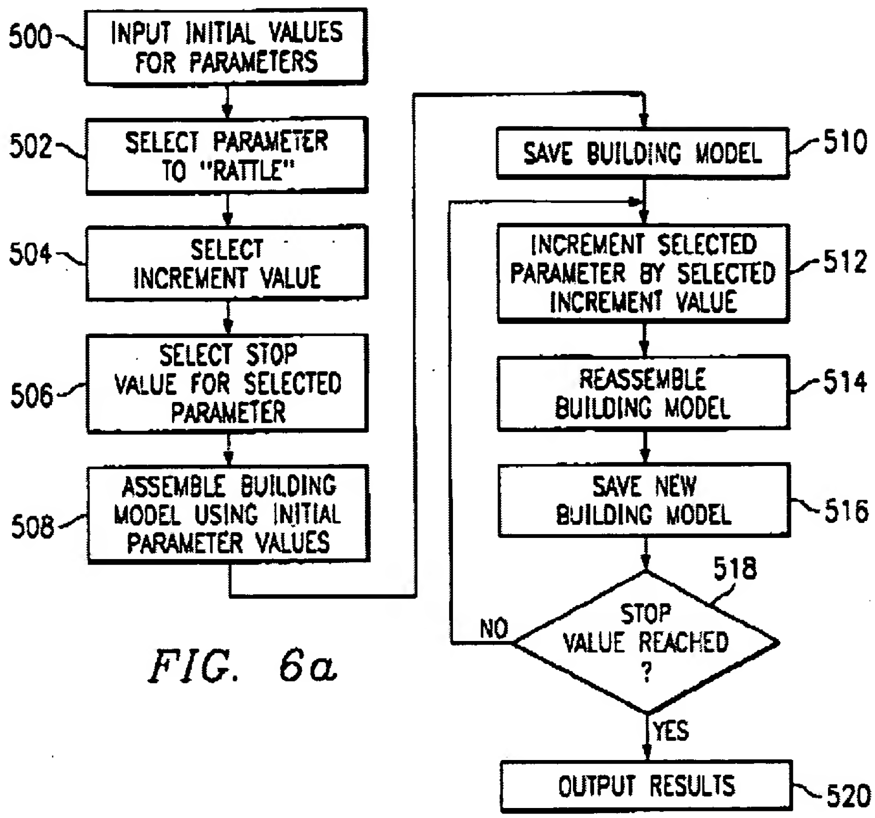

FIG. 6a

Figure 3: Wakelam et al.

Regarding Claim 2 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the items are stored in at least one database and each item has an associated first and second item value (spatial database, element libraries; Abstract; Column 11, Lines 1-60; Column 3, Lines 34-46; Column 8, Lines 17-37, 46-68; Column 9, Lines 8-15; Column 12, Lines 12-24 Figure 1, Elements 118, 122, 123, 124).

Regarding Claim 3 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising calculating a first project value based on the project information and criteria and determining sets of items that are in compliance (meet, achieve, reach, etc.) with the calculated first project value (e.g. budget compliance, code compliance, client requirement compliance, etc.; Column 3, Lines 34-46; Column 4, Lines 1-9, 60-68; Column 5, Lines 1-15, 68-68; Column 9, Lines 40-45; Column 14, Lines 16-55; Figure 3).

> "This process continues autonomously as thus described for each branch of the hierarchy 200 down through the Quantity element 202g until a complete building model has been assembled from the appropriate library elements as **constrained by the defined project parameters.**", emphasis added, Column 3, Lines 34-37

Regarding Claim 4 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising iterating through combinations of first item values and determining sets of items that are in compliance with the first project value based on the iterated combinations (design alternatives, rattling the box, continual feedback loop, redesign based on updated parameters, redesign based on element clashes, automatic self-assembly; etc.; Column 4, Lines 37-59; Column 5, Lines 1-15, 42-68; Column 13, Lines 5-33; Column 14, Lines 13-55; Column 18, Lines 34-68; Column 19, Lines 1-46; Appendix A; Figures 3, 6a).

> "Execution begins in step 300 responsive to a request from a client to develop a project scenario. In step 300, **parameters for the project are defined and input** to the DMES system 110 as described below. Examples of project parameters include, but are not limited to, number of floors, total gross area, floor plate area, type of structure, and cladding systems. Upon completion of step 300, execution proceeds to step 302, in which a DMES process, implemented via the DMES system 110, is initiated. As described herein, and as generally shown and described with reference to FIG. 1a, the DMES process of step 302 is a **continual feedback loop that produces a variety of building models and associated project scenarios, including cost estimates and**

> **construction schedules**, intended to distill the vision of the client into a comprehensive solution, including a building model, **cost estimate**, and **construction schedule**, which is submitted to the client for design, **budget**, and **schedule review** and **approval** (step 304) and then forwarded to the appropriate authorities for code review and permitting purposes (step 306). In particular, the DMES process (step 302) results in the development of construction documentation, including construction drawings, details, specifications, renderings, movie paths, and shop drawings, **itemized budgets**, and detailed **construction schedules**, which are simultaneously produced for each building model.", Column 14, Lines 16-43, emphasis added

Regarding Claim 5 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising calculating second project value based on the project information wherein the step of iterating begins at a first combination of first item values based on the second project value (Column 4, Lines 37-59; Column 5, Lines 1-15, 42-68; Column 13, Lines 5-33; Column 14, Lines 13-55; Column 18, Lines 34-68; Column 19, Lines 1-46; Appendix A; Figures 3, 6a).

Regarding Claim 6 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the at least one database further comprises a table comprising a plurality of second project values and associated combinations of first item values (estimates database, design/building model database, scheduling database, etc.; Column 9, Lines 8-68; Figure 1, Elements 118, 122, 123, 124; Figures 3, 6a).

Regarding Claim 7 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each set value is a combination of the second item values associated with each set of items (cost, materials, quantities,

labor, installation, schedule, building model/configuration, massing elements, etc.; Column 8, 16-37; Column 9, Lines 1-65; Column 12, Lines 11-36; Column 14, Lines 15-45; Figures 2a-2k, 3).

Regarding Claim 13 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each second item value is an item cost (cost estimate database; Column 9, Lines 8-31; Column 12, Lines 11-24; Column 14, Lines 16-43; Column 19, Lines 18-37; Figure 1, Element 123; Figures 1b, 2b-2c, 3, 6a).

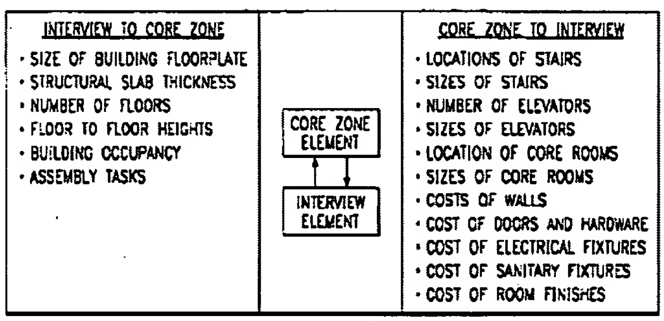

Fig. 2b

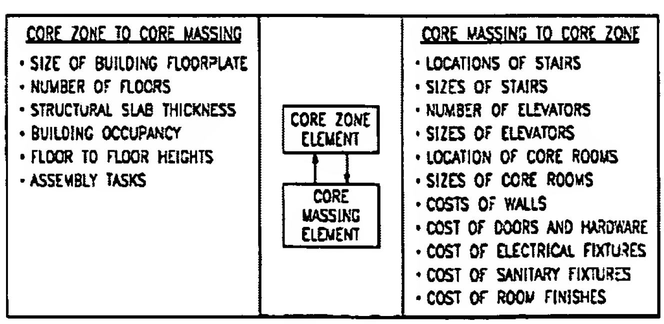

Fig. 2c

Figure 4: Wakelam et al.

Regarding Claim 14 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria is established based on the inputted project information (Column 2, Lines 1-10, 48-60; Column 8, Lines 16-37, 55-68; Column 10, Lines 6-56; Column 20, Lines 12-29; Figures 3, 6a).

Regarding Claim 15 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria comprises a portion of a building code (Column 2, Lines 1-10; Column 8, Lines 25-37; Column 14, Lines 43-55); Figure 3, Elements 306, 308).

Regarding Claim 17 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the inputted project information comprises structural information (Column 2, Lines 11-36; Column 3, Lines 34-46; Column 14, Lines 15-43; Column 17, Lines 36-68; Figures 3; 2a-2d; 4a-5f).

Regarding Claim 18 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information comprises structural information including information on main walls, ceilings, floors, basement walls, doors, glazing, slab perimeter *or* crawl space walls (Column 2, Lines 11-36; Column 3, Lines 34-46; Column 14, Lines 15-43; Column 17, Lines 36-68; Figures 3; 2a-2d; 4a-5f).

Regarding Claim 19 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information includes mechanical equipment information (e.g. HVAC, elevator, etc.; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Regarding Claim 25 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each item comprises information on one type of building material *or* type of building system (Column 10, Lines 57-68; Column 11, Lines 1-25; Figures 2a-2k; Appendix B).

Regarding Claim 30 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising updating second item values (Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Regarding Claim 31 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising sending a document (information, data, text, etc.) updated second item value information to a system (administrative server, subsystem, component, code, subroutine, etc.) to update the at least one database (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

"the estimate database 123 is designed such that the **cost data contained therein may be periodically updated either automatically or manually** via local or remote access

> thereto. For example, in a web-based implementation of the present invention, it would be possible for one or more authorized individuals to upload updated cost data to the database 123 on the web server. Alternatively, it would be possible for one or more authorized individuals to download such **updated cost data** to the database 123 stored on a computer connected to a network server or to manually update the data by directly accessing the database and changing selected data.", emphasis added, Column 9, Lines 20-31

Regarding Claim 32 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further includes contractor (labor, subcontractor, supplier, vendor, staff, personnel, etc.) including installation information and costs (Column 3, Lines 35-57; Column 9, Lines 32-65; Column 12, Lines 11-24; Column 13, Lines 10-15).

Regarding Claim 33 Wakelam et al. teach a system for selecting a set of items that meet a given criteria (requirements, parameters, etc.) when included within a project comprising:

- a central computer having processor and an input device for receiving project information (Figure 1);

- at least one database having a list of items that may be used in constructing the project and a first value for each of the items (Abstract; Column 11, Lines 1-60; Column 3, Lines 34-46; Column 8, Lines 17-37, 46-68; Column 9, Lines 8-15; Column 12, Lines 12-24 Figure 1, Elements 118, 122, 123, 124);

- code for determining sets of items that may be used in constructing the project (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for calculating a total first values for each of the sets of items (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for selecting a set of items based on the calculated total first values (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308; Figure 6a-6b); and

- code for displaying to a user the selected set of items (Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520).

Regarding Claim 34 Wakelam et al. teach a system for selecting items for a project wherein each of the items is a building material and a building system (Column 10, Lines 57-68; Column 11, Lines 1-25; Figures 2a-2k, Appendix B), the project is a structure (Abstract), each first value is an item cost and each total first value is the sum material costs of the set of items (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 9, Lines 20-31; Column 19, Lines 1-37; Figures 2b-2c, 4b, 6a-6b).

Regarding Claim 42 Wakelam et al. teach a system for selecting items for a project wherein the central computer comprises a network server and further comprises at least one computer that is adapted to be connected to the network server over a

network to transmit structure information to the network server (Column 5, Lines 57-68; Column 7, Lines24-52; Column 17, Lines 63-68; Figures 1, 1a).

Regarding Claim 82 Wakelam et al. teach a system of selecting items for a project wherein one type of building system is a HVAC system (HVAC; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Regarding Claim 84 Wakelam et al. teach a system of selecting items for a project further comprising analyzing interactions between at least two items based on their associated first item and second item values (redesign, rattling the box, design/model iteration, cross-checking, clash detection, etc.; Column 4, Lines 38-59; Column 13, Lines 22-33; Column 18, Lines 34-68; Column 19, Lines 1-37; Figures 6a-6b).

Regarding Claim 85 Wakelam et al. teach a system of selecting items for a project further comprising analyzing interactions between at least one of the items and a structural component based on an associated first item value and second item value (Column 4, Lines 38-59; Column 13, Lines 22-33; Column 18, Lines 34-68; Column 19, Lines 1-37; Figures 6a-6b).

Regarding Claim 89 Wakelam et al. teach a system of selecting items for a project wherein the project information includes a comprising a computer-aided design file (Column 1, Lines 8-39; Column 4, Lines 26-37; Column 18, Lines 3-16).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 8-12, 16, 20-23, 26, 35-38, 43 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claims 1-7, 13-15, 17-19, 25, 30-34, 42, 82, 84-85 and 89 above and further in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck).

Regarding Claims 8 and 35 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising determining and displaying the set with the lowest set value (optimum design, cost maxima/minima; Column 18, Lines 33-59; Column 18, Lines 40-59; Column 19, Lines 1-43; Column 20, Lines 5-11; Figures 6a, 6b).

> "If in step 518 it is determined that the current value of the selected parameter is equal to (or exceeds) the selected stop value, execution proceeds to step 520, in which the results are output, preferably in the form of a graph to enable a user quickly and easily to **determine the cost maxima and minima**.", Column 19, Lines 32-37, emphasis added

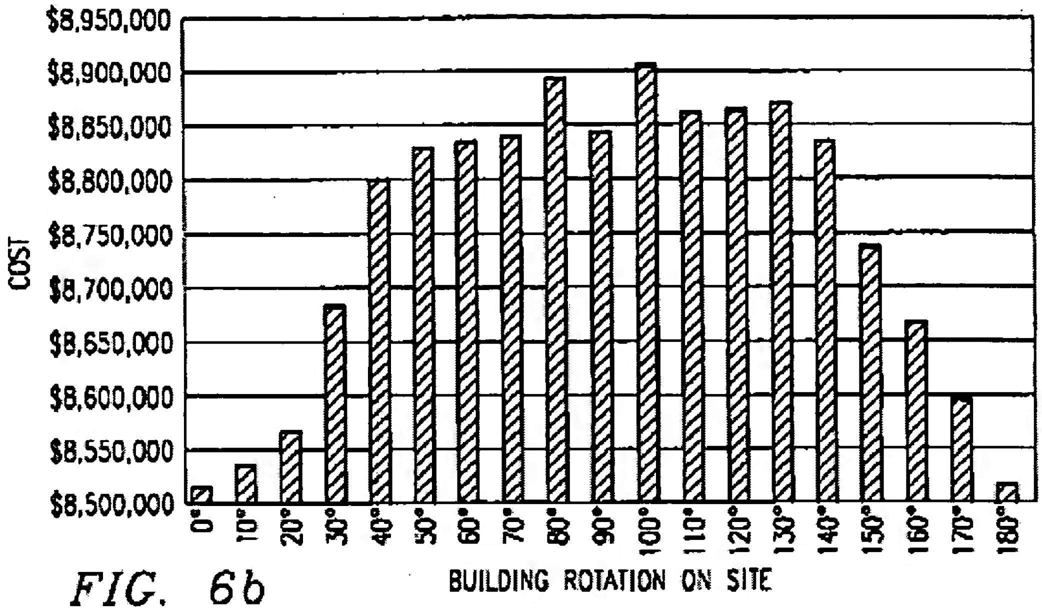

FIG. 6b

Figure 5: Wakelam et al.

While Wakelam et al. teach selecting sets of items that meet a plurality of project criteria including financial budget (Column 14, Lines 33-40) and performing cost comparisons between alternative design models Wakelam does not expressly teach selecting items with the lowest total value as claimed.

MECcheck teaches selecting project items that have the lowest value and/or values that optimize one or more building energy codes/standards (criteria) in an analogous art of project performance evaluation for the purposes of ensuring that a project's selected set of items complies with building energy codes (e.g. minimum R-value, trade-off analysis, etc.; Introduction: Pages 1, 4-5; Appendix D: Trade-off Worksheet Guide, Pages 1-3; Software Overview: Compliance Example, Pages 27-30).

More generally MECcheck teaches determining that a set of selected items is in compliance with a set of project values (e.g. energy/building codes) in an analogous art of project performance analysis for the purposes of ensuring (guaranteeing) that a project meets with applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5).

MECcheck teaches a computer-implemented method and system for selection items of a project within criteria comprising:

- inputting project information including project criteria (Software User's Guide: Pages 6-16);

- determining with a computer sets of items based on the project information that meet the project criteria (Compliance Example, Pages 27-29);

- calculating for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; Software User's Guide: Last Paragraph, Page 3; Paragraph 1, Page 4; Compliance Example, Pages 27-29);

- selecting a set of items based on the one or more calculated values (Steps 1-5, Page 4; Figure 1; Software User's Guide, Pages 1, 22; Compliance Example, Pages 27-29); and

- displaying to a user the selected set of items that meet the project criteria (Figure 1; Compliance Example, Pages 27-29).

MECcheck further teaches a system and method for evaluating the performance of a selected set of items (e.g. a building design) wherein the performance is defined by

the project's compliance to selected building energy codes such as maximum U-factors, minimum R-values, insulation, HVAC, windows and the like (Introduction: Pages 1, 4-5) and further wherein building energy codes specify the thermal envelope requirements for the project.

MECcheck further teaches that the system and method for selecting/evaluating items, such as insulation and windows, for a construction project is part of an iterative design process wherein trade-offs are made amongst the various project items (Software Overview: "...enables you to quickly compare different insulation levels in different parts of your building to arrive at a package that works best for you.", Page 1; Page 27). MECcheck teaches that the system utilizes project structural, weather, material, mechanical equipment (HVAC) and other information to evaluate the performance of the selected project items (Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29).

MECcheck further teaches that the project performance analysis system and method provides information such as maximum UA, your UA as well as percent better/worse than code (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for projects that meet a plurality of criteria as taught by Wakelam et al. would have benefited from minimizing item values (e.g. minimum R-value) in view of the teachings of MECcheck; the resultant system enabling building decision-makers to design and evaluate buildings (i.e. select items) that do not

over and/or under comply/meet with project criteria and/or codes (MECcheck: Software Overview: Page 4, Paragraph 1).

Regarding Claim 9 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising presenting a display of the set of items with the lowest set value (Column 18, Lines 33-59; Column 18, Lines 40-59; Column 19, Lines 1-43; Column 20, Lines 5-11; Figures 6a, 6b).

Regarding Claim 10 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project values include a plurality of well-known values including values related to insulation, glass solar gain, building codes and regulations and the like (Column 8, Lines 25-37; Column 10, Lines 57-68; Column 11, Lines 1-24; Figures 2a-2k).

Wakelam et al. does not expressly teach that the project values include a UA value (UA= U-factor x area) as claimed.

MECcheck teaches that a project value is a UA value, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (e.g. UA value) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4; Appendix B: Pages 1-2, Definitions: Page 3).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from determining/evaluating a project's UA value/factor in view of the teachings of MECcheck; the resultant system/method enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 11 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project values include a plurality of well-known values including values related to insulation, glass solar gain, building codes and regulations and the like (Column 8, Lines 25-37; Column 10, Lines 57-68; Column 11, Lines 1-24; Figures 2a-2k).

Wakelam et al. does not expressly teach that a project value is a glazing *area percentage* as claimed.

MECcheck teaches that a project value is a glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes (MECcheck: Appendix B: Pages 1-2; Definitions Page 3; Software Overview: Page 15).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes (BDA: reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4).

Neither Wakelam et al. nor MECcheck expressly teach that the glazing area is represented as a percentage as claimed.

Official notice is taken that representing values using percentages is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion

(fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 12 Wakelam et al. does not expressly teach that one of the project values is an R-value as claimed.

MECcheck teaches that one of the project values is an R-value in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet'1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited utilizing R-values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.; MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).

Further regarding Claims 10-12 it is noted that the specific labels applied to the one or more project value(s) represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the project value(s). Further, the structural elements remain the same regardless of the labels applied to the project value(s). Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claim 16 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria includes building codes and regulations (Column 8, Lines 25-45).

> "This automatic DMES process encapsulates the knowledge and expertise of the designers and engineers, and the **rules and codes of the construction industry**

> **specialists and regulatory bodies**. It accepts the design requirements of the building owner, or customer, then automatically generates the appropriate building design in the form of a coordinated building model and generates the coordinated design documents necessary to construct the building.", emphasis added; Column 4, Lines 1-13

While building codes comprising energy codes are well known in the construction industry Wakelam et al. does not expressly teach that one of the criteria for selecting items comprises an energy code as claimed.

MECcheck teaches selecting/evaluating project items based on the selected item(s) ability to meet/comply with a building energy code in an analogous art of evaluating the performance of project designs for the purposes of ensuring that a project meets applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5; Software Overview: Pages 25-26).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from further evaluating the selected project items ability to meet/comply with building energy codes in view of the teachings of MECcheck; the resultant system enabling building-decision-makers to ensure their project design comply with local/national building codes (Introduction: Pages 1, 4-5).

Regarding Claims 20 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information comprises mechanical equipment including HVAC information, as discussed above,

While it is old and very well known that HVAC comprising air conditioners heaters, Wakelam et al. does not expressly teach that the mechanical equipment comprises a forced air furnace, boiler, heat pump *or* air conditioner as claimed.

MECcheck teaches that the system utilizes project structural, weather, material, mechanical equipment (HVAC) and other information to evaluate the performance of the selected project items (Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29) wherein the mechanical equipment includes forced air furnace, boiler, heat pump *or* air conditioner.

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from including forced air furnace, boiler, heat pump *or* air conditioner in view of the teachings of MECcheck; the resultant system enabling users to evaluate the performance of the selected project items (MECcheck: Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29).

Further regarding Claim 20 it is noted that the specific labels applied to the one or more mechanical equipment items represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the mechanical equipment items. Further, the structural elements remain the same regardless of the labels applied to the mechanical equipment items. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claim 21 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the system/method automatically redesigns (selects items) based on modified project information including market parameters, design/project criteria and/or item clashes (Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Wakelam et al. further teach that the system and method of selecting items for a project is applicable to both new and renovation (i.e. upgrade) projects (Column 1, Lines 12-27).

Wakelam et al. does not expressly teach that the project information comprises upgrade information as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 22 Wakelam et al. does not expressly teach that the project information further comprise at least one energy saving component as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

MECcheck further teaches that at least one project item/component is an energy saving component (e.g. HVAC efficiency; Software Overview: Page 22).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to

analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 23 Wakelam et al. does not expressly teach indicating information regarding an efficiency percentage upgrade as claimed.

MECcheck teaches indicating a percentage upgrade (improvement, efficiency, percent better/worse) than an energy baseline/code/standard in an analogous art of project item performance analysis and evaluation for the purposes of indicating the extent to which a selected set of items (design) meets the building codes (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from indicating the extent to which a design (news, existing, upgrade, set of items, etc.) does or does not meet a baseline/expected result and/or represents an improvement in view of the teachings of MECcheck; the resultant system enabling building decision-makers to readily discern whether or not their design meets given project criteria (MECcheck: Software Overview: Page 5).

Regarding Claim 26 Wakelam et al. does not expressly teach that a type of building material is an insulation material as claimed.

MECcheck teaches that one of the project items/components is insulation having R-values in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet 1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method for selecting project items within criteria as taught by Wakelam et al. would have benefited modeling insulation as part of the design process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.; MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).

Regarding Claim 36 Wakelam et al. does not expressly teach that the items comprise different types of insulation, that the criteria is an energy code that uses a UA value for a given structure, or calculating a UA value for the project/structure or determining sets of insulation that maybe use in constructing the structure in compliance with the UA value as claimed.

MECcheck teaches a system and method for evaluating/analyzing project the comply with codes/standards, in an analogous art of project/item performance, further comprising:

- the selection/utilization of a plurality of well known insulation types including but not limited to blown, sprayed, (Basic Requirements Guide: Page 5), cavity insulation (Software Overview: Page 9), duct insulation (Basic Requirements Guide: Pages 5-6), HVAC piping insulation (Base Requirements Guide: Page 9), slab insulation (Definitions: Page 5), rigid foam (Software Overview: Page 9) and the like as well as defining various levels/depths of insulation by location (structural components);
- project criteria that is an energy code and that comprises a UA value for a given structure (Software Overview: Pages 9; Basic Requirements: Pages 5-6); and
- determining sets of insulation, in compliance with the energy code UA value, to be used in constructing the project by calculating a UA value based on at least part of the structure information and energy code (Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from modeling/evaluating several types of insulations and their associated code UA values in view of the teachings of MECcheck; the resultant system enabling designers to ensure their designs (alternative selections

of building materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 37 Wakelam et al. does not expressly teach that the project information includes glazing area percentages associated with items used in constructing the project/structure while complying with an energy code, calculating at least one glazing area percentage or determining sets of items associated with the glazing area percentage as claimed.

MECcheck teaches that at least one database further comprises glazing area and associated items that may be used in constructing a structure while complying with the energy code and further comprising code to calculate at least one glazing area for the structure based on the input structure information and code to determine sets of items by first determining the items that are associated with the calculated glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes ("Your UA", "Max UA"; Software User's Guide: Last Paragraph, Page 3; Windows, gross area, U-Factor, UA value; Page 15; Appendix B: Pages 1-2; Definitions Page 3).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria as taught by Wakelam et al. would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes.

Wakelam et al. and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion/percentage of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 38 Wakelam et al. teach a system for selecting items for a project further comprising code to evaluation combinations of items, for example changing/modifying project criteria or specifying project criteria as ranges, in order to compare as well as optimize structure/building models (auto redesign, closed loop feedback, design iteration, rattle the box, etc.), as discussed above.

Wakelam et al. does not expressly teach that one of the project criteria is glazing area percentages as claimed.

MECcheck teaches comparing selected items for a project including the evaluation of glazing area as discussed above. MECcheck further teaches that the system and method for selecting project items that comply with building codes/standards further comprises identifying the closeness (e.g. percent better/worse) of the selected project items (building design) to the building codes/standards for the

purposes of enabling designers (users, architects, building decision-makers) to adjust their designs (e.g. make trade-offs, choose different components, etc.) in order to more closely meet the building codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by Wakelam et al. would have benefited from evaluating/analyzing UA factors/values and selecting project items that comply with building energy codes based at least in part on those UA values in view of the teachings of MECcheck; the resultant system enabling designers to select project items that comply with building codes by enabling them to select a set of items that is closets to the required codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

Wakelam et al. and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements, as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 43 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising sending a document (information, data, text, etc.) updated second item value information to a system (administrative server, subsystem, component, code, subroutine, etc.) to update the at least one database (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Regarding Claim 87 Wakelam et al. does not expressly teach producing performance guarantees as claimed.

MECcheck teaches guaranteeing (ensuring) that a project achieves a target requirement (building code, performance requirement/guarantee) in analogous art of

selecting project items/components for the purposes of ensuring a project complies with the required building codes (Introduction: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items within a criteria as taught Wakelam et al. would have benefited from ensuring (guaranteeing) that the selected project items met the required building codes (target requirements) in view of the teachings of MECcheck; the resultant system enabling users to guarantee/certify a project's design (selected set of items) meets target requirements defined by the building codes (MECcheck: Introduction: Pages 1, 4-5).

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claim 21 above and further in view of Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following supporting references:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C.

Regarding Claim 24 Wakelam et al. does not expressly teach determining energy consumption based on the selected set of items as claimed.

BDA teaches determining energy consumption (usage, requirements) based on the selected set of items (reference A: energy costs; Last Paragraph, Page 4; energy analysis, DOE-2; Figure 1; reference B: DOE-2, Column 1, Paragraph 1, Page 3; reference C: RESGY "is used with annual weather data distributions to compute monthly totals for energy requirements by end use and energy source.", Column 2,

Paragraph 2, Page 13; DOE-2 for energy analysis, Figure 2) in an analogous art of selecting items for a project within criteria for the purposes of providing more information regarding the project's (building/structure) performance characteristics during the design process (reference C: Paragraph 1, Page 2) .

More generally BDA teaches a method and system for selecting items (components, systems, products, materials, etc.) to be used in the construction and/or retrofit of a building (structure, office, residence, project, etc.) wherein the items are selected based on the iterative prediction and evaluation of a plurality of projects/structures (designs) performance (energy, economics, cost, environmental impact, etc.) using multiple criteria (values, parameters, etc.; reference A: Abstract; Figures 3, 5, 8; reference B: Column 1, Paragraphs 1-2, Page 1; Column 2, Paragraph 4, Page 2; Figure 1; reference C: "The main objective of the Building Design Advisor (BDA) project is to develop a computer-based tool that allows building decision-makers to quickly and easily integrate energy considerations into decision making throughout the early phases of building design.", Column 2, Paragraph 1, Page 3; Figures 1-2; Page 14).

BDA further teaches a computer-implemented method of selecting items (components, materials, elements, etc.) for a project (effort, initiative, building, etc.) within a criteria (parameter, value, threshold, energy, economics, comfort, aesthetics, etc.) comprising:

- inputting (entering, submitting, providing, etc.) project information including project criteria (schematic design editor, building browser, prototype database, CAD

files, building model, etc.; reference A: Abstract; Pages 3, 6, 11; Figures 1, 5-8; reference B: User Interface, Pages 8-9; Column 2, Last Paragraph, Page 9; Figures 7, 8, 12);

- determining (selecting, calculating, estimating, etc.) with a computer sets of items (components, elements, materials, systems, equipment, etc.) based on the project information that meet the project criteria (reference A: Abstract; ; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; Figures 1-3; reference C: Column 2, Paragraph 4, Page 1; Column 1, Paragraph 1, Page 2; Figure 1; Decision Desktop, multi-criterion decision making; Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- calculating (simulating, predicting, estimating, evaluating, modeling, etc.) for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; reference A: Page 3; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3-4; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Column 2, Paragraph 1, Page 14);

- selecting (choosing, design selection, etc.) a set of items based on the one or more calculated values (performance, economics, decision desktop; reference A: Abstract; Figure 3; reference C: Column 2, Paragraph 1, Page 3; Figures 1-2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14); and

- displaying to a user the selected set of items that meet the project criteria (building browser, decision desktop; decision desktop, building browser, etc.: reference A: Abstract; "Graphical User Interface", Page 6; Figures 1, 3-5; reference C: "User Interface", Pages 8-9; Figures 10-11; reference A: "review results from computations and data queries in a variety of graphical displays", Last Bullet, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12).

BDA further teaches a system for selecting a set of items that meet a given criteria when included within a project, the system comprising:

- a central computer having a processing and an input device for receiving information on a project (reference A: Paragraph 3, page 14; reference B: Figures 4-6; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 2, Page 5);

- at least one database having a list of items that may be used in constructing (assembling, building, modeling, simulating, etc.) the project and a first value for each of the items (project database, project design database, schema database, item objects having parameters, relations and methods, meta-schema, etc.; reference A: "The integrated data model", Pages 4-5; Paragraph 1, page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference C: Column 2, Paragraph 1, Page 5; Figure 2; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5);

- code (module, program, routing, object, etc.) for determining sets of the items that *may be* used in constructing the project (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- code for calculating a total first values for each set of items (reference A: Page 3; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 1, Page 14; Figure 2);

- code for selecting a set of items based on the calculated total first values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraph 1, Page 3; Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14)

- code for displaying to a user the selected set of items (reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic

Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

BDA teaches a system and method of selecting items of a project wherein selecting a set of items further comprises:

- selecting items (components, materials, elements, activities, etc.) based on a plurality of performance criteria including but not limited to cost (e.g. lowest initial cost, life-time cost, etc.), energy savings, and the like (cost libraries, economic analysis module, cost analysis; reference C: Column 1, Paragraph 2, Page 1; Column 1, Paragraph 1, Page 2; Column 1, Paragraph 2, Page 4; Figure 2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11); and

- presenting (providing, sending, displaying, etc.) the set of selected items as discussed above.

BDA teaches a system and method of selecting items for a project wherein the system (database) includes (reference C: "The design decision is now reduced to

finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4; Column 1, Paragraph 1, Page 5):

- glazing value and associated items; and
- determining sets of items to be used in constructing the project by calculating at least one glazing value for the structure based on the structure information.

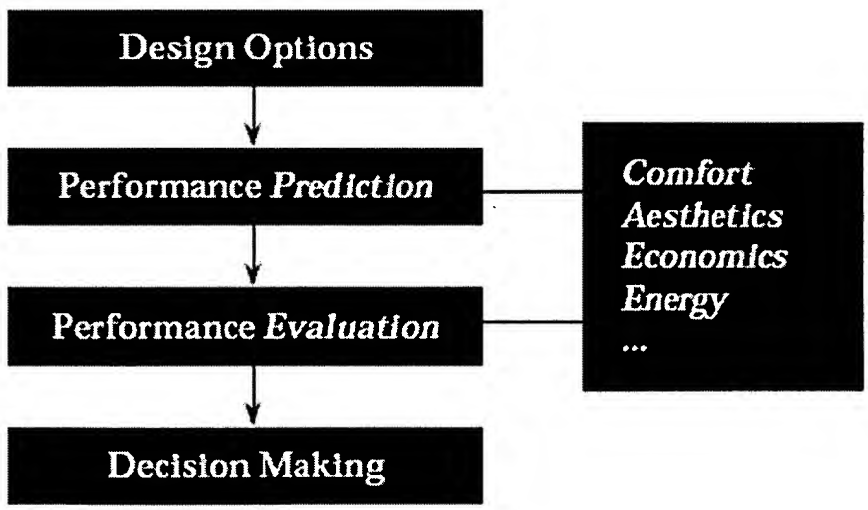

Figure 1. Building design decisions require performance prediction and evaluation with respect to multiple performance considerations.

Figure 6: BDA reference C: Figure 1

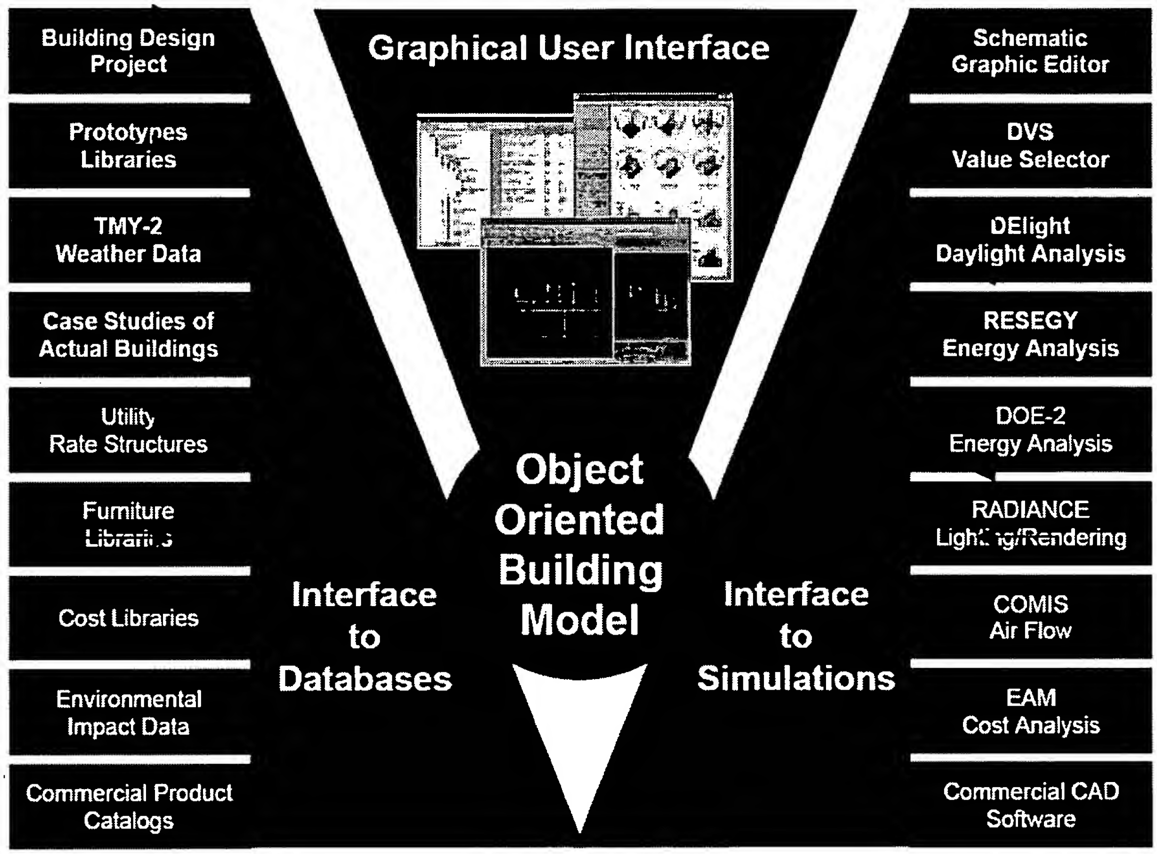

Figure 2. The Building Design Advisor is composed of a central data model that is linked to a graphical user interface and multiple simulation tools and databases.

Figure 7: BDA reference C: Figure 2

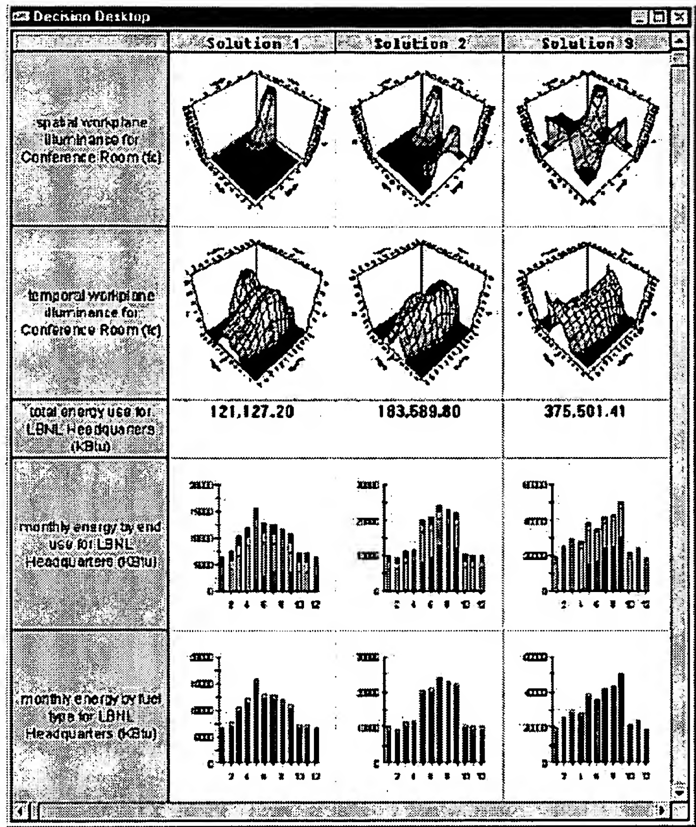

Figure 3. The Decision Desktop allows the user to compare multiple alternative designs with respect to any number of input and output parameters addressed by the simulation tools linked to the BDA.

Figure 8: BDA reference A: Figure 3

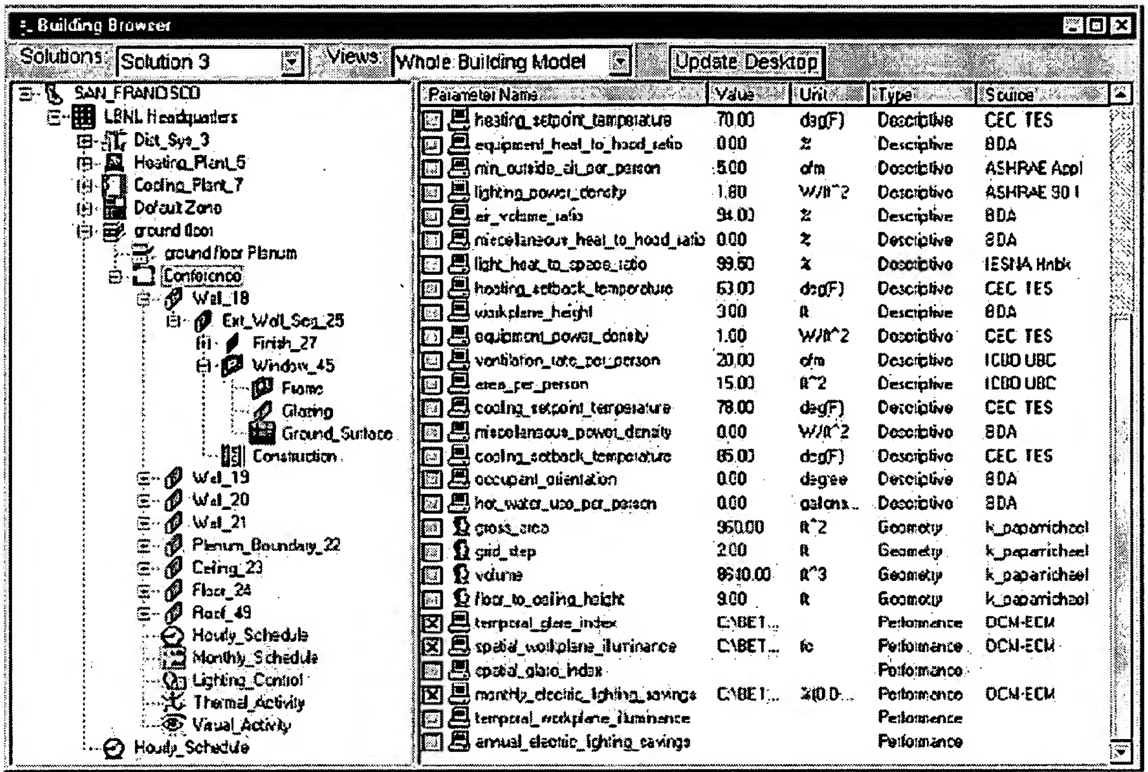

Figure 5. The Building Browser allows the user to quickly navigate through the object-based representation of the building and its context, and select any number of input and output parameters for display in the Decision Desktop.

Figure 9: BDA reference A: Figure 5

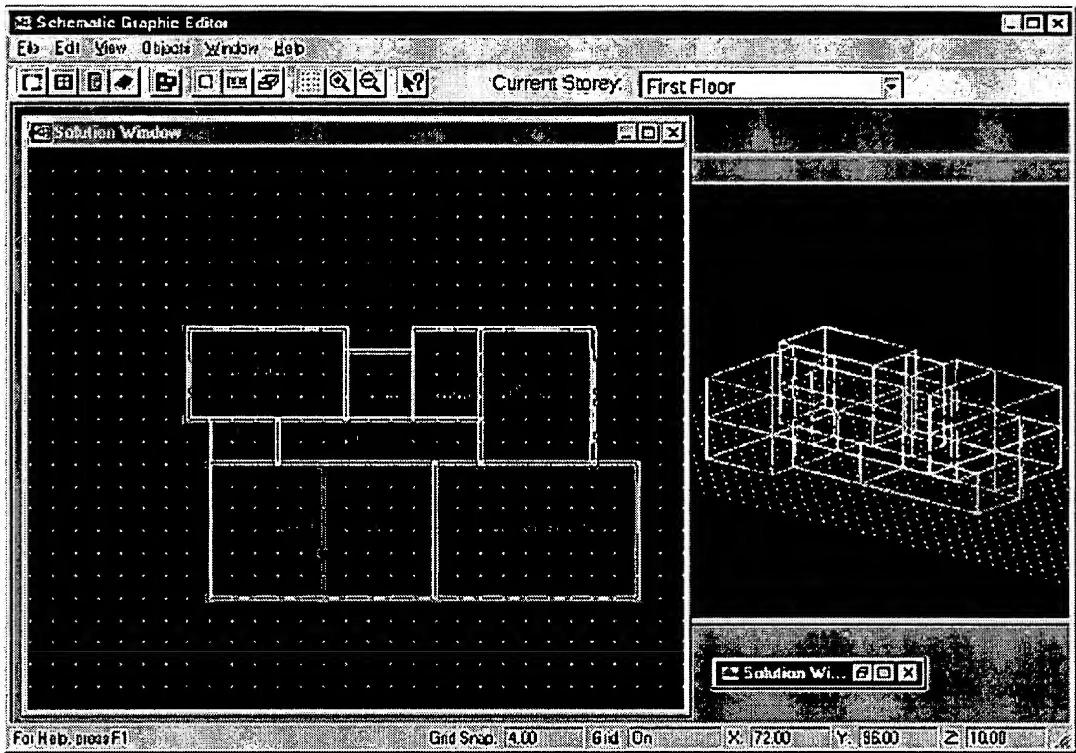

Figure 8. The Schematic Graphic Editor allows the user to draw and modify the geometry of building objects, and supports the display of multiple design alternatives, in their own windows.

Figure 10: BDA reference A: Figure 8

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from determining energy consumption of the project (structure) based on the selected set of items in view of the teachings of BDA; the resultant system/method providing more information regarding the project's (building/structure) performance characteristics during the design process (BDA: reference C: Paragraph 1, Page 2) .

11. Claims 39-41 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claims 3 and 36 above and further in view of Bosch, Maria An Expert System for Cost-Effective Energy Efficiency Calculations (1996).

Regarding Claim 39 Wakelam et al. does not expressly teach code to decrease the UA value by a certain percentage, and code to determine another lowest cost set of items based on the decreased UA value as claimed.

MECcheck teaches adjusting (decreasing, increasing) the UA value as part of the design (selected items) trade-off analysis for determining a set of selected items that comply with the building codes (Max UA, Your UA, percent over/under compliance, etc.; Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 15, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from performing trade-off analysis between the plurality of project items/components (alternative designs; i.e. code to decrease the UA value by a certain percentage) in view of the teachings of MECcheck; the resultant system enabling designers to ensure their designs (alternative selections of building

materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

Wakelam et al. and MECcheck do not expressly teach determining a lowest cost set of items based on the decreased UA value (changed project items/information) as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria including the use of UA values as part of the performance evaluation as taught by the combination of Wakelam et al. and MECcheck would have benefited from selecting items having the lowest cost (most cost effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Regarding Claim 40 Wakelam et al. teach a system for selecting items for a project wherein updates to project information including criteria updates (schedules, cost, design changes, etc.) causes the system to update/redesign/remodel the project/structure, as discussed above. Wakelam et al. further teach that the system comprises at least one database having climate control equipment information (HVAC; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Wakelam et al. does not expressly teach calculating energy consumption information based on the new lowest set of insulation and climate control as claimed.

MECcheck teaches evaluating the impact of insulation and climate control equipment on a project's performance and/or ability to comply with building codes in an analogous art of project performance analysis for the purposes of ensuring the selected set of items (design) complies with building codes/standards (Introduction: "A major focus of the code provisions is on the building envelope insulation and window requirements", Page 1; Step 3, Compliance Process, Page 4; Software Overview: Compliance Example, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items that meet a plurality of criteria as

taught by the combination of Wakelam et al. would have benefited from taking into account the effect of insulation in view of the teachings of MECcheck; the resultant system enabling users to ensure the selected project items comply with building energy codes including but not limited to codes requiring specific insulation/thermal performance values (MECcheck: Introduction: Page 1).

Regarding Claim 41 Wakelam et al. teach a system for selecting items for a project based on a plurality of building materials and systems specifications (properties) as well as performing cost comparisons and/or building model optimizations by iteratively generating multiple structure/building models (rattling the box; Column 13, Lines 22-33; Column 19, Lines 1-37; Figures 6a-6b).

Wakelam et al. does not expressly teach code to recalculate the UA value for the structure and to determine another lowest cost set of items based on the recalculated UA value as claimed.

MECcheck teaches code to recalculate the UA value for the structure, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (Your UA, Max UA, percent over/under compliance, etc.) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4, 15; Appendix B: Pages 1-2, Definitions:

Page 3) as well as performing trade-off analysis based on the UA and other project item/component values as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system for selecting items for a project as taught by Wakelam et al. would have benefited from code to recalculate the UA value for the structure during each of the design iterations/revisions in view of the teachings of MECcheck; the resultant system enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

Wakelam et al. does not expressly teach project items having the lowest cost as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items utilizing a plurality of project item values including but not limited to UA values that meet a plurality of performance criteria including but not limited to cost as taught by the combination of Wakelam et al. and MECcheck would have benefited from selecting and presenting (recommending, identifying, etc.) project elements having the lowest cost (i.e. most cost-effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Regarding Claim 81 Wakelam et al. does not expressly teach that the first project value is an energy baseline level as claimed.

MEC teaches that one of the project values is an energy baseline (standard, code, acceptable level, minimum requirement, etc.) which building designs (set of selected components) must minimally meet, in an analogous art of project performance analysis for the purposes of ensuring designs/selected set of components meet baseline/required performance levels (Overview: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within project criteria as taught by the Wakelam et al. would have benefited from identifying an energy

baseline in view of the teachings of MECcheck; the resultant system enabling building decision-makers to compare their designs with the baseline and ensure the meet or exceed the baseline requirements (MECcheck: Overview: Pages 1, 4-5).

12. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 3 above and further in view of Khan, U.S. Patent Publication No. 2002/0032611.

Regarding Claim 27 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria wherein the system/method generates all of the "documents necessary to construct the building" (Column 4, Lines 5-14) including complete building design, graphic estimate sheet, material lists and material requisitions (Column 5, Lines 8-13; Column 13, Lines 10-21; Column 14, Lines 29-55; Column 17, Lines 63-68).

While the utilization of "bill of materials", take-off sheets/analysis are old and very well known in the construction industry and while Wakelam et al. expressly teaches determining the types and quantities of items needed to complete the project (building), even going so far as ordering the necessary materials from suppliers/vendors, Wakelam et al. does not expressly teach the phrase "*bill of materials*" as claimed.

Kahn teaches generating a bill of materials (BOM) based on a selected set of items in an analogous art of selecting items for a project within project criteria/constraints (Paragraphs 0022, 0039, 0045, 0050; Figure 2) for the purposes of providing a "next-generation bill of material and materials management system that reads live dynamic data from the multiple vendors to make a better more accurate cost

effective decision on ordering the parts or filling needed inventory" (Paragraph 30) as well as created a common bill of material format that can be used to find and compare suppliers/vendors (Paragraphs 0024-0026).

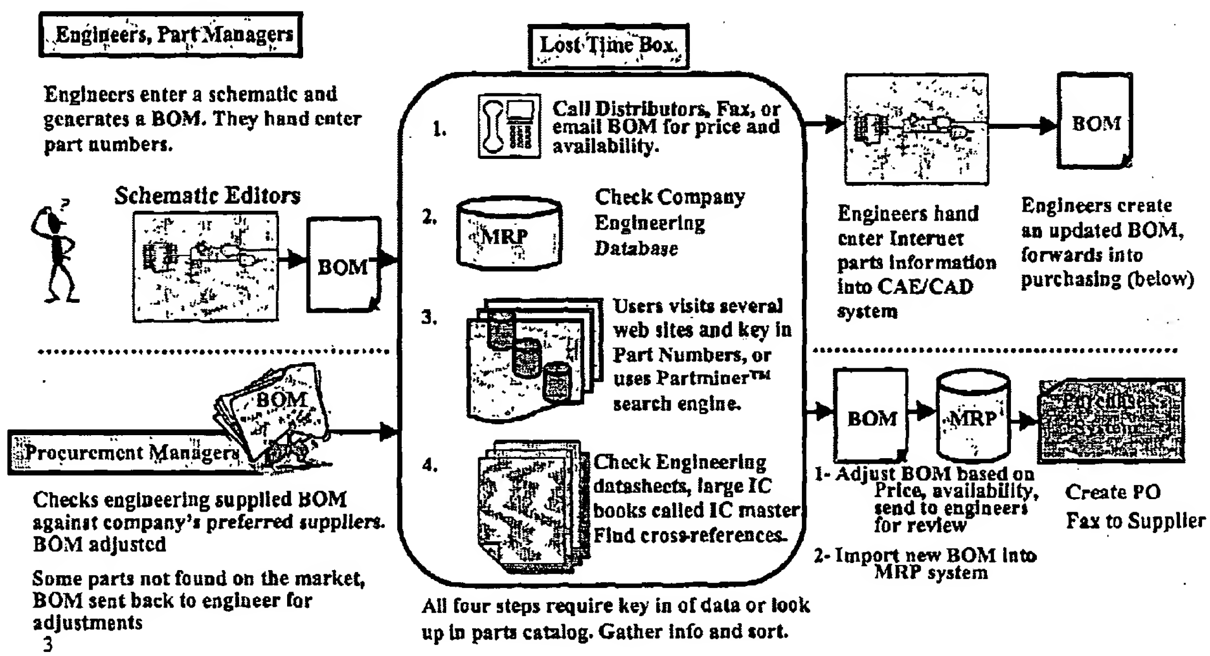

Figure 11: Kahn

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. with its generation of complete project designs, material lists and integration with suppliers would have benefited from utilizing and generating a bill of materials using well known techniques/practices (e.g. take off analysis) in view of the teachings of Khan; the resultant system/method enabling users to identify

suppliers/vendors having the best possible item prices based on the generated BOM (Khan: Paragraphs 0026, 0030).

Regarding Claim 28 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria includes displaying the total amount of items required to construct the project (Column 4, Lines 1-14; Column 5, Lines 6-10; Column 9, Lines 8-30; Column 12, Lines 11-24, Column 13, Lines 6-34; Column 14, Lines 30-42).

Regarding Claim 29 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria further comprising providing information on suppliers/vendors based on the project design (building configuration, design, model, etc.; Column 4, Lines 1-14; Column 5, Lines 5-15; Column 17, Lines 63-68).

Wakelam et al. does not expressly teach displaying information on suppliers based on the bill of materials as claimed.

Kahn teaches providing information on suppliers based on the bill of materials in an analogous art of selecting items for a project (Abstract; Paragraphs 0022, 0039, 0045, 0050; Figure 2) for the purposes of automating the bill of materials sourcing processing (Paragraphs 0028, 0029) as well as enabling users to "better communicate design and procurement data of companies with suppliers (Paragraph 0030, 0050).

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from providing information on suppliers based on a bill of materials for the project in view of the teachings of Kahn; the resultant system/method thereby enabling users to "better communicate design and procurement data of companies with suppliers" (Kahn: Paragraph 0030, 0050).

13. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 2 above and further in view of Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986).

Regarding Claim 80 Wakelam et al. does not expressly teach that a project criterion is an energy budget as claimed.

Carroll teaches budgets for projects, including energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project in an analogous art of selecting items for a project (Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2; and

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8.

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for a project within criteria including costs/economics as taught by Wakelam et al. would have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of Carroll; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

14. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claim 34 above and further in view of Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986).

Regarding Claim 83 Wakelam et al. does not expressly teach that a project criterion is an energy budget or calculating an energy baseline as claimed.

MECcheck teaches utilizing a plurality of project items/components to meet an energy baseline (requirement, code, standard) including but not limited to the use of insulation to meet a building code wherein the building decision-maker generates an predicted energy baseline (rating, compliance report, etc.) demonstrating the project's compliance to the building energy code (compliance report; Software Overview: Pages 1-3; Compliance Example Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within criteria as taught by Wakelam et al. would have benefited from utilizing insulation to meet/exceed an energy baseline in view of the teachings of MECcheck; the resultant system being capable of demonstrating a project's compliance with building codes/standards (MECcheck: Software Overview: Pages 1-3).

Wakelam et al. and MECcheck do not expressly teach that energy budget is a criterion as claimed.

Carroll teaches budgets for projects, such as energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project in an analogous art of selecting items for a project (Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2; and

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8.

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for a project within criteria including costs/economics as taught by the combination of Wakelam et al. and MECcheck would

have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of Carroll; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

15. Claims 86 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 32 above and further in view of Pray et al., U.S. Patent No. 4,885,694.

Regarding Claim 86 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further includes contractor (labor, subcontractor, supplier, vendor, staff, personnel, etc.) including installation schedule information and costs (Column 3, Lines 35-57; Column 9, Lines 32-65; Column 12, Lines 11-24; Column 13, Lines 10-15), as discussed above.

Wakelam et al. further teaches updating scheduling information (e.g. activities), cost and other project information in response to schedule changes (Column 3, Lines 47-63; Column 6, Lines 1-7; Column 5, Lines 3-15; Column 9, Lines 32-65; Column 10, Lines 1-5) and that the system/method utilizes well known project management tools/systems including but not limited to project management tools from Primavera (Column 7, Lines 53-63).

Wakelam et al. does not expressly teach determining delay costs based on the installation schedule as claimed.

Pray et al. teach determining and updating an installation schedule in an analogous art of selecting sets of project items that meet project criteria for the

purposes of estimating and managing project costs (Column 2, Lines 46-68; Column 7, Lines 5-45; Column 12, Lines 43-68).

More generally Pray et al. teach contractor (labor, worker, staff, etc.) scheduling information, determining an installation (labor, build, development, etc.) schedule and associated costs for the selected set of items (e.g. project design) based on the contract schedule information and installation costs (Column 2, Lines 46-68; Column 3, Lines 1-21; Column 4, Lines 50-68; Column 7, Lines 5-44; Column 8, Lines 21-49; Column 12, Lines 43-68; Column 13, Lines 25-39; Column 17, Lines 42-61; Figure 14) in an analogous art of selecting items for a project within a criteria (Column 1, Lines 5-25) for the purposes of generating proposals, bids, bill-of-materials and other project documentation as well as to enable the project/cost management of the project (Column 2, Lines 46-68).

Additionally Pray et al. teach a system and method of selecting items of a project within a criteria comprising inputting project information data, determining/selecting a set of items that meet the project criteria and displaying the selected items (program sizing, substantially automated system design, etc.; Column 1, Lines 24-27; Column 12, Lines 10-15; Column 13, Lines 65-68; Column 14, Lines 19-37).

Wakelam et al. and Pray et al. do not expressly teach determining the costs of delays as claimed.

Official notice is taken that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule.

Support that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule can be found in at least the following reference Primavera Project Planner – Planning and Control Guide Version 3.0 (1999): Paragraph 1, Page 17; Pages 32, 41, 72, 194, 198, 215.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by the combination of Wakelam et al. and Pray et al. would have benefited from deterring the cost of delays to the installation/construction/building of the selecting items/project in view of the teachings of official notice; the resultant enabling users to monitor the impact of delays on project schedules and/or budgets.

Regarding Claim 88 Wakelam et al. does not expressly teach charging a fee as claimed.

Pray et al. teach charging a fee (job bill processing, Column 1, Lines 20-22; Column 3, Lines 9-15; Column 8, Lines 30-35; Figure 8) in an analogous art of selecting sets of items for a project within criteria for the purposes automatically billing customers (Column 3, Lines 9-15).

It would have been obvious to one skilled in the art at the time of the invention that the building performance evaluation system as taught by Wakelam et al. would have been benefited from charging a fee for the utilization of the system in view of the teachings of Pray et al.; the resultant system compensating individuals and/or organizations for their products/services (Pray et al.: Column 3, Lines 9-15).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- McCormick, U.S. Patent No. 5,893,082, teach a system and method for developing cost estimates for construction projects using multiple project take-off windows/sheets.

- Broughton et al., U.S. Patent No. 5,920,849, teach a system and method for selecting items for a project wherein the system select items for the project based on inputted project information.

- Murdock et al., U.S. Patent No. 5,983,010, teach a system and method for selecting items for a project (building structure). Murdock et al. further teach that performing energy audits, energy simulations and structure costing based on the structure (selected items) using computer implemented methods are well known.

- Loveland, U.S. Patent No. 6,037,945, teach a system and method for estimating construction costs, including material and labor costs, based on inputted project structural information.

- Tanaka et al., U.S. Patent No. 6,343,285, teach a system and method for determining the types and sizes of components (project items) required to meet project criteria.

- Thompson, U.S. Patent No. 6,292,410, teach a computer implemented system and method for performing a construction project over a network comprising determining quantities of items (materials) required for a project, generating cost and

price estimates for the determined set of items, developing project schedules and enabling users to purchase and/or bid out project items.

- Elliott, U.S. Patent No. 6,446,053, teach a computer implemented method for selecting a set of items to meet one or more project criteria wherein the methods develops a construction project proposal having detailed cost estimates and list of project items which can be submitted electronically over a network for a bid.

- Ananian et al., U.S. Patent No. 6,922,701, teach an online system and method for selecting sets of items (components) within project criteria including design regulations, building requirements, regulatory codes, material costs, budget and the like tracking the selected items. Ananian et al. further teach the selection of items is known as the specification process wherein

> "The typical specification process begins with the client seeking the design services of an architect or possibly a builder. The design service provider asks the client a series of questions to identify the needs and desires of the client, relating to the building. The designer must also *ascertain the financial capabilities* of the client to formulate a draft plan. The designer typically creates a graphical representation of the proposed design concept with sketches or rough layouts. Upon mutual agreement of the concept, the professional can then *establish an estimate of the costs based upon the location of the building on the property and the materials specified by the client.*"

Ananian et al. further teach that

> "The AEC industry is saturated with software applications that assist industry professionals in the planning and estimating of building projects. Structural profiling can provide the entire industry with a new paradigm. Builders would be able to load structural profiles into their desktop estimating application without having to recreate the assemblies. Builders, contractors and estimators would be able to continue where the customer finishes."

- Duenke, U.S. Patent Publication No. 2002/0026343, teach a computer implemented system and method of selecting items within project criteria (e.g. building code) comprising: generating material and labor costs (e.g. total material costs and total

labor hours), take off sheets/analysis, storing a plurality of item values in databases (vendor database, item database, material costs, prices, specifications, etc.) and inputting project information via computer-aided-design files.

FIG. 2

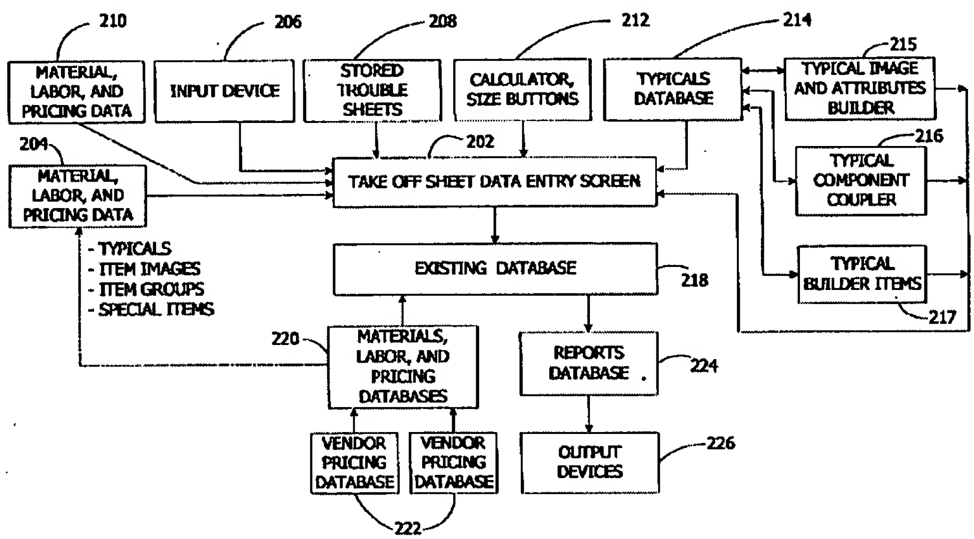

Figure 12: Duenke

- Bankvall, Thermal Research Application to Buildings (1990) teach the selection of building elements to meet building performance requirements wherein the items include various types of insulation (a.k.a. thermal design).

- Kim, Knowledge-aided design system (1990), teach a computer implemented system and method for designing builds, including material/system selection, to meet one or more project criteria including economic (budget, efficiency, operation cost – cost effectiveness evaluations of buildings), sociological, environmental, functional (maximum allowable percent fenestration, maximum allowable U-value) and aesthetics wherein the system provides recommendations, evaluations and suggestions on the

building design and/or materials selected as well as energy-efficiency strategies/designs (Figures 15-16, 27-31).

- Heikkila et al., Using expert systems to check compliance with municipal codes (1992), teaches automated system and method for ensuring selected project items meet specified criteria (building codes).

- Dharwadkar et al., Project Management Using Intelligent 3-D CAD (1994), teach a plurality of computer-implemented systems and methods for determining construction schedules and activity sequences (e.g. installation) based on inputted project/building/structure information (CAD).

- Bashir, Developing a computer program in an artificial intelligence language for pavement design including material cost and estimation (1995), teach an computer-implement system and method wherein the system selects sets of items for a project within project criteria and generates the material quantities and costs required for the project's construction.

- Donn et al., Decision Support Tools for Building Code Energy Efficiency Compliance (1995), teach the well known utilization of building energy codes that govern building design and construction as well as tools utilized in selecting/designing buildings to meet the energy codes.

- Balcomb, Energy-10 (1997), teaches a computer-implemented system and method for selecting items (materials) for a building design wherein the materials are chosen to meet predetermined performance criteria. Balcomb further teaches that the Energy-10 system includes an AutoBuild component/code that automatically designs

and compares and ranks two building designs comprising different material and equipment selections.

- Alshawi et al., An IFC Web-Based Collaborative Construction Computer Environment (WISPER, 1999), teaches an online computer implemented system and method for supporting the end-to-end construction process including detailed design, building element based cost estimating and construction scheduling.

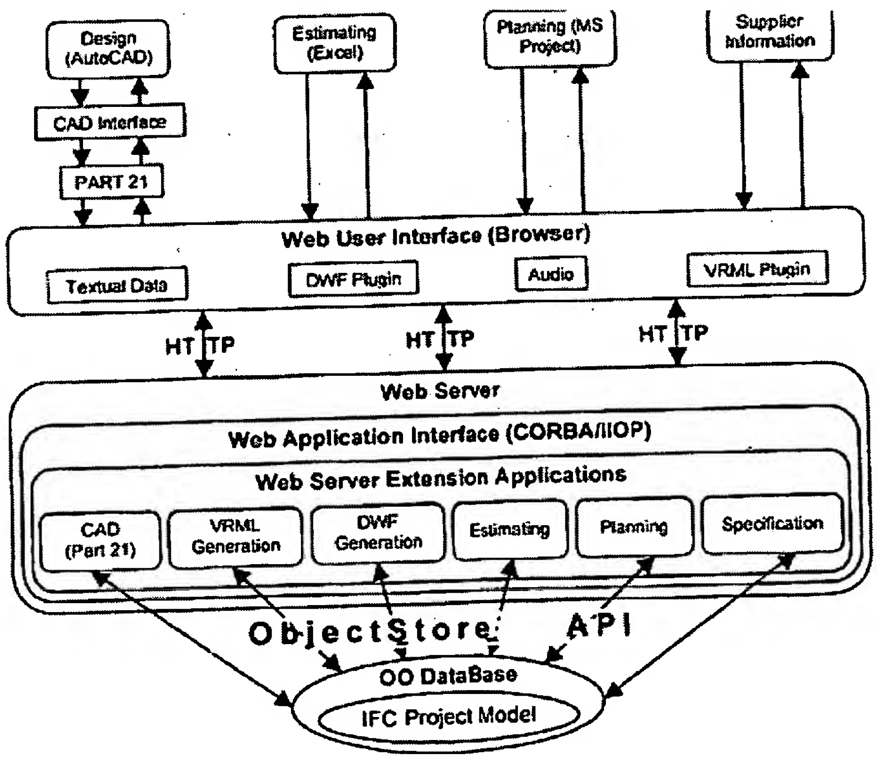

Figure 1: Overview of WISPER

Figure 13: Alshawi et al.

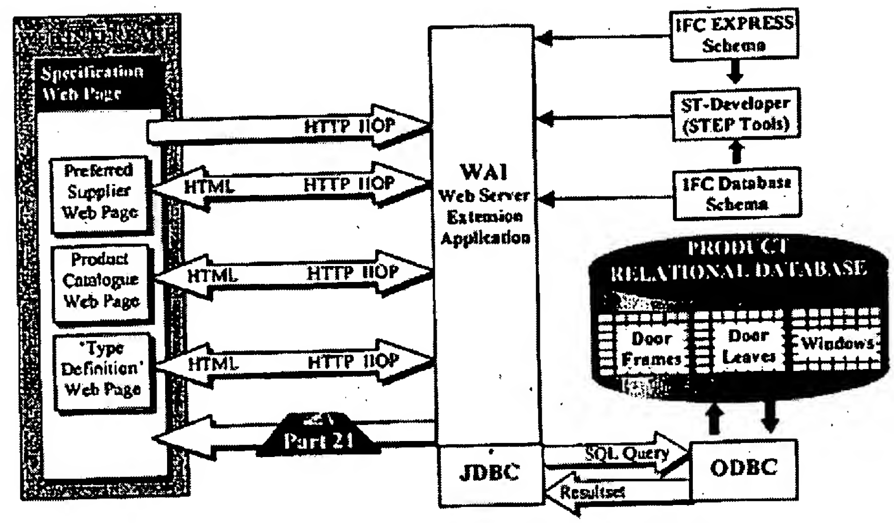

Figure 14: Overview of the Specification Application

Figure 14: Alshawi et al.

- Gu et al., Building Energy Code Advisor (1999), teach a computer-implemented system and method (decision support system) for selecting building materials and systems that meet project criteria including energy efficiency, building energy codes, glazing, U-values, R-values and the like.

- Parker et al., EnergyGauge USA (1999), teach a system and method for selecting building materials, designs and equipment to meet one or more building performance criteria including energy efficiency and energy code compliance.

- Andresen, A Multi-Criteria Decision Making Method for Solar Building Design (2000), teaches a computer-implemented method and system for selecting building systems and materials that meet specified project criteria wherein the system supports the well known building design processes including problem formulation (e.g. performance criteria selection), generating of alternatives, performance prediction and evaluation.

Andersen further teaches the use of well-known computer simulation methods, including Building Design Advisor and Energy-10, which can perform such tasks as "do a rank ordering of the energy-efficient strategies according to their effectiveness. The strategies can be ranked by different criteria, such as energy savings, cost savings or lifecycle costs."

- eQuest (2000), teaches a commercially available system and method for performing energy simulations including energy-efficiency measures and energy consumption/usage based on selected project items.

- Reynolds, HomeTech Remodeling and Renovation Cost Estimator 35th Edition (2000), teaches a computer implemented method and system of selecting building materials and/or systems which meet a plurality of criteria wherein the system/method generates building project materials, costs, and prices based on materials/items selected.

- Shu, Free Software for Energy Code Compliance (2000), teaches the well-known utilization of building simulation/modeling software to ensure a buildings design meets energy code requirements/criteria.

- Bidworx.com Web Pages (1999), teaches a commercial system and method for construction project takeoff analysis and cost estimating.

- HomeTechOnline.com Web Pages (2000), teach a publicly available system and method for selecting items for a project comprising cost estimating, scheduling and pricing.

- Waltz, Computerized Building Energy Simulation Handbook (2000), teaches a method for utilizing computer systems/programs for performing building energy simulations for such things as modeling energy conservation, performing energy audits, project pricing and the like.

- Govan et al., Thermal Insulation Materials and Systems for Energy Conservation in the 80's (1983), teach the selection of thermal insulation materials to meet building requirements (code acceptance).

- Powell et al., Thermal Insulation (1987), teach selecting items (e.g. insulation systems and materials) that meet project criteria.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (571) 272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SJ
2/23/2007

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